## THE CLAIMS

1. In a method for modifying the refractive power of a light adjustable lens in an optical system, with lens modifying radiation, the improvement comprising:

measuring at least one optical aberration in the system containing the lens;

aligning a source of the modifying radiation so as to impinge the radiation onto the lens in a pattern that corresponds to the correction of the aberration; and

controlling the quantity of the impinging radiation whereby to correct the aberration.

2. The method of claim 1 in which the quantity of the impinging radiation is controlled by controlling the intensity and duration of the irradiation.

3. The method of claim 1 in which the pattern of the impinging radiation is controlled and monitored while the lens is irradiated.

4. The method of claim 1 including the step of irradiating the entire lens to lock in the modified refractive power.

5. The method of claim 1 in which the optical system comprises the light adjustable lens as an intraocular lens implanted in an eye.

6. The method of claim 1 in which the optical system comprises the light adjustable lens as an ex-vivo, customized intraocular lens (phakic or aphakic) to be implanted in an eye.

7. The method of claim 1 in which the optical system comprises the light adjustable lens as a customized contact lens to be used in ophthalmic systems (e.g. the eye) and ophthalmic applications.

8. The method of claim 1 in which the optical system (e.g. microscopes, telescopes, camera lenses, machine vision systems, video surveillance equipment, satellite imaging equipment, etc.) possesses at least one light adjustable refraction element that can be used to null the aberrations present in the system to improve image quality.

9. The method of claim 1 in which the impinging radiation is ultraviolet light obtained from a source thereof.

10. The method of claim 7 in which the ultraviolet light source comprises a plurality light emitting diodes whose outputs are directed onto the receiving end of a light pipe that directs the ultraviolet light onto the lens.

11. The method of claim 10 in which the light pipe is an optical fiber.

12. The method of claim 9 in which the ultraviolet light source comprises the output of a pulsed ultraviolet light laser.

13. The method of claim 1 in which the ultraviolet light is from a pulsed ultraviolet light laser .

14. The method of claim 9 in which the ultraviolet light source generates continuous wave ultraviolet light.

15. The method of claim 14 in which the continuous wave ultraviolet light is obtained from an arc lamp.

16. The method of claim 14 in which the continuous wave ultraviolet light is obtained from a deuterium discharge lamp.

17. The method of claim 14 in which the continuous wave ultraviolet light is obtained from a continuous wave laser.

18. The method of claim 14 in which the continuous wave ultraviolet light is obtained from a continuous wave light emitting diode.

19. The method of claim 1 in which the pattern that corresponds to the aberration is opposite in phase to the measured aberration.

20. The method of claim 17 in which an ultraviolet vertical-cavity surface-emitting laser array is used to generate the pattern and project it onto the surface of the light adjustable lens.

21. The method of claim 17 in which the pattern is obtained by projecting ultraviolet light through an apodizing filter having a predetermined intensity profile.

22. The method of claim 17 in which the pattern is obtained by projecting ultraviolet light through a spatial light modulator.

23. The method of claim 17 in which the pattern is obtained by reflecting ultraviolet light from a digital light processor.

24. The method of claim 17 in which the pattern is obtained by photo-feedback.

25. The method of claim 22 in which the photo-feedback is obtained from a Shack-Hartmann sensor.

26. The method of claim 23 in which the photo-feedback is obtained from a Shack-Hartmann sensor.

27. The method of Claim 9 in which the ultraviolet light has a wavelength in the range of 350 to 380 nm and is applied at an intensity of 9.75 to 12.25 $mW/cm^2$.

28. The method of claim 4 in which the modified refractive power of the light adjustable lens is locked in by patterned radiation.

29. The method of claim 24 in which the non-patterned radiation has a "top hat" intensity profile.

30. The method of claim 24 in which the non-patterned radiation is has an intensity profile that diminishes as the radius increases.

31. The method of claim 27 in which the radius (r) increases by the formula: $1-(r^2/r^2_{max})$.

32. The method of claim 24 wherein the optical system comprises the light adjustable lens as an intraocular lens implanted in an eye in which the iris does not fully dilate, and wherein the non-patterned radiation is projected through a gonio lens.